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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,947	04/08/2005	Olli Hyvarinen	4819-4740	2356
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MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101				
EXAMINER				
MC GUTHRY BANKS, TIMA MICHELE				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
03/27/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/530,947

Applicant(s)

HYVARINEN ET AL.

Examiner

TIMA M. MCGUTHRY-BANKS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

Claims 1-4, 6-17 and 19 are as previously presented, and Claims 5 and 18 are currently amended.

Specification

The disclosure is objected to because of the following informalities: applicant should insert "Brief Description of the Drawing" on page 7 before line 22.

Appropriate correction is required.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

Claims 1-19 are objected to because of the following informalities: in Claim 1, it is not clear to the examiner if the silver amalgam includes the fine-grained copper or if it is separate of the amalgam. The claim does not have an active step of generating a silver amalgam. The specification on page 6 discloses that (1) the copper is dissolved (lines 5-11) and (2) the silver is precipitated as a silver amalgam onto the surface of the copper in accordance with reactions (2)

and (3). It is not clear in the claims what happens to the fine-grained copper. The claim is broad enough to include other substances in the amalgam. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-4, 7 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett (US 5,487,819) in view of Peters et al (US 4,214,379) and as further evidenced by "Grit and Microgrit Grading Conversion Chart."

Everett discloses producing one or more metals from a mineral feedstock. The electrolyte has a high chloride content and has ionic copper dissolved therein (column 8, lines 11 and 12). After leaching a first stage purification is performed using electrowinning. Ionic mercury is added. Everett teaches forming a Cu/Hg/Ag amalgam on a platinum cathode. The amalgam may be dissolved in a return anolyte stream that breaks down the amalgam into cupric and mercuric ions that are recycled. Dilution of the anolyte solution precipitates silver chloride; the electrolyte is first passed over element copper to cement silver thereupon prior to passing it to silver recovery (column 12, lines 1-17). In the event of mercury buildup due to the presence of Hg in the feed, precipitation on copper metal from a bleed stream was utilized (column 16, lines 60-63). Regarding the limitation of a preselected molar ratio, the molar ratios in Claims 2-4, the concentrated chloride solution in Claim 14, and the copper concentration in Claims 15, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said

variable might be characterized as routine experimentation; therefore a *prima facie* case of obviousness exists. See MPEP § 2144.05 II B. Regarding Claim 7, countercurrently feeding copper powder in relation to the solution flow is within the scope of the prior art teaching of Everett. Regarding Claim 16, the pH of the cuprous chloride solution is less than 3.5; in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. Regarding Claim 17, the recycle process reads on the silver being removed before the Ag/Cu/Hg amalgamation product is formed.

However Everett does not specifically disclose how the silver is cemented on the elemental copper, that the silver generated in an amalgam, or that the copper is fine-grained as in Claim 1, the particle size of the fine-grained copper as in Claims 5 and 18, or the amount of copper powder feed as in Claims 6 and 19.

Regarding Claim 1, Peters et al teaches a process for recovering silver from chloride solutions comprising contacting the solution with amalgams of various metals including copper to replace the metal with silver and recovering silver from the formed silver amalgam (abstract). The invention applies broadly to the recovery of silver from silver chloride solutions and from solutions containing both silver chloride and cuprous chloride, irrespective of the origins of these solutions (column 2, lines 50-55). The amalgam can be a free-flowing copper amalgam or a copper shot coated with mercury (column 4, lines 49-54). The bottom Hg phase, low in copper and Ag, can be returned for recycle (column 6, lines 30 and 31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to recovery silver using elemental copper as taught by Everett with the amalgamation process taught by Peters et al, since Peters et al teaches that this process alloys for the production of substantially silver-free cuprous

chloride crystals (column 2, lines 5-8) and results in a successful recovery of substantially all of the valuable silver (column 9, lines 13 and 14).

Though Everett discloses granular copper in column 12, lines 21 and 22, Everett does not disclose the size of the granules. Peters et al teaches recovering silver from chloride solutions using mercury. The copper amalgam was prepared with 150 mesh copper powder (column 5, lines 65 and 66); 150 mesh is between 76 and 89 microns as evidenced by “Grit and Microgrit Grading Conversion Chart.”

Regarding Claims 5 and 18, Peters et al compliments the teaching of Everett by teaching the size of the copper used for amalgamation of silver and mercury. Furthermore, Everett and Peters et al demonstrate that using particulated copper is well known in the art for amalgamation of silver.

Regarding the amount of copper powder feed Claims 6 and 19, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation; therefore a *prima facie* case of obviousness exists. See MPEP § 2144.05 II B.

Claims 8, 9, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett in view of Peters et al as applied to claim 1 above, and further in view of Bertha (US 4,666,514).

Everett in view of Peters et al discloses the invention substantially as claimed. However, Everett in view of Peters et al does not disclose precipitating with an oxidant as in Claim 8 or that the oxidant is hypochlorite as in Claim 9.

Bertha teaches removing silver from sludge formed at the anode in copper electrolysis (abstract). The sludge is subjected to chlorination by hypochlorite in the presence of HCl. The silver present is converted into a silver chloride precipitate (column 3, lines 18-46).

Regarding Claims 8 and 9, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sludge removal process of Bertha in the silver chloride precipitation of Everett in view of Peters et al, since the process of Bertha is noncorrosive, easier, and safer to perform than previously disclosed silver recovery processes (column 3, lines 1-5).

Regarding Claims 12 and 13, AgCl was precipitated and treated to produce silver metal. Cupric, mercuric, and any remaining silver ions were recycled to the silver recovery cell (Everett, column 16, lines 55-60).

Claims 8, 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett in view of Peters et al as applied to claim 1 above, and further in view of Stanley et al (US 4,670,052).

Everett in view of Peters et al discloses the invention substantially as claimed. However, Everett in view of Peters et al does not disclose precipitating with an oxidant as in Claim 8 or that the oxidant is hydrogen peroxide as in Claim 10.

Stanley et al teaches leaching refinery anode sludge with HCl and hydrogen peroxide to remove silver from the leach slurry as insoluble silver chloride (column 1, line 66 to column 2, line 1).

Regarding Claims 8 and 10, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sludge removal process of Stanley et al in the silver

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chloride precipitation of Everett in view of Peters et al, since the process of Stanley et al yields high recoveries of metals (column 4, lines 40-48).

Regarding Claims 12 and 13, AgCl was precipitated and treated to produce silver metal. Cupric, mercuric, and any remaining silver ions were recycled to the silver recovery cell (Everett, column 16, lines 55-60).

Claims 8 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett in view of Peters et al as applied to claim 1 above, and further in view of Derwent Acc-No. 1983-789093.

Everett in view of Peters et al discloses the invention substantially as claimed. However, Everett in view of Peters et al does not disclose precipitating with an oxidant as in Claim 8 or that the oxidant is oxygen as in Claim 10.

Derwent '093 teaches recovering metals from anode slimes containing metals such as Cu by simultaneous leaching with HCl and air or oxygen to obtain a silver chloride-rich residue (abstract).

Regarding Claims 8 and 10, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sludge removal process of Derwent '093 in the silver chloride precipitation of Everett in view of Peters et al, since the process of Derwent '093 is economical, gives higher yields and is less environmentally polluting than previously known recovery processes (abstract).

Regarding Claims 12 and 13, AgCl was precipitated and treated to produce silver metal. Cupric, mercuric, and any remaining silver ions were recycled to the silver recovery cell (Everett, column 16, lines 55-60).

Response to Arguments

Applicant's arguments, filed 31 January 2008 with respect to the rejection(s) of claim(s) 1-19 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Everett and Peters et al.

Regarding applicant's argument that Peters et al does not use a fine-grained copper, Peters et al further exemplifies the free-flowing copper amalgam in column 6, lines 10-16 with a column packed with copper metal and copper/mercury powder in column 5, lines 67 and 68. Since applicant has not defined what "fine-grained copper" is, the examiner can take the broadest meaning of this limitation. Also, applicant has not provided an active step of generating the silver amalgam; therefore, the way it is produced in Peters et al ("replacing") is not currently relevant. The process in Peter et al results in an amalgam containing silver, which is claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information

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/Roy King/
Supervisory Patent Examiner, Art Unit
1793

/T. M. M./
Examiner, Art Unit 1793
29 March 2008